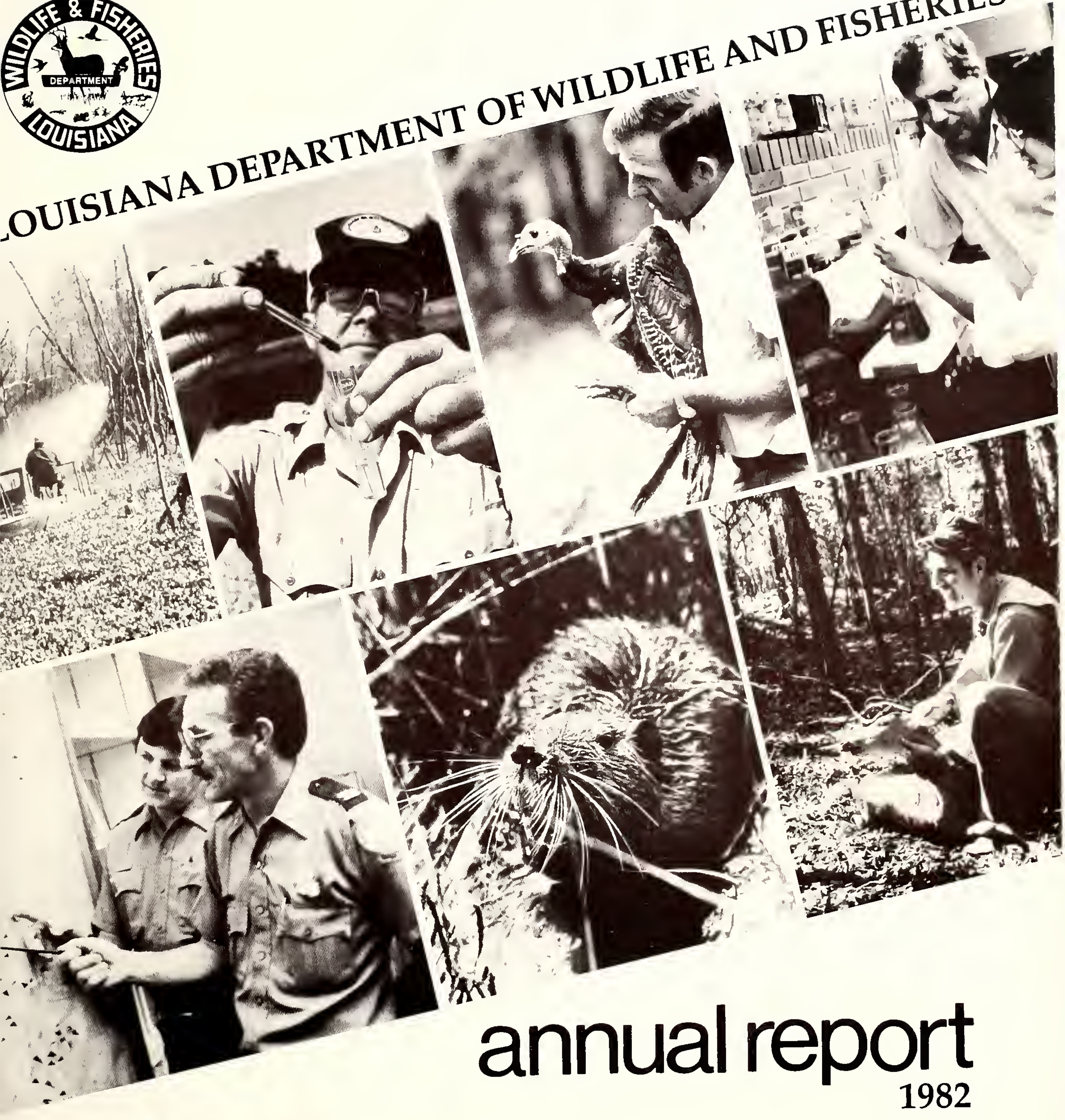
LOUISIANA DEPARTMENT OF WILDLIFE AND FISHERIES



annual report

1982

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Annual Report 1982

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Wildlife and Fisheries

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A Message from the Secretary

I seek to focus attention in this message on some of the most important activities and accomplishments of the Department of Wildlife and Fisheries during the calendar year 1982, as they affect the people of Louisiana.

Because hundreds of thousands of Louisiana's citizens are dependent upon wise and prudent management and utilizaton of the state's wildlife and fisheries resources, either for outdoor recreation or for a livelihood, the responsibilities and programs of the department are broad and diversified.

This annual report to the Governor and members of the Louisiana Legislature will provide details on the many ongoing programs to enhance, perpetuate, annually replenish and properly harvest wildlife resources of the state.

Those programs of activity to assure ample stocks of renewable wildlife and fisheries resources will be dealt with in detail in those sections of this report pertaining to operation of the major divisions in the Office of Wildlife and in the Office of Coastal and Marine Resources.

The administration of the overall department, including reports from the Office of Management and Finance, the Enforcement Division, the Information and Education Division, the Personnel Section, the Communications Section, and a special report on phasing out of the Marine Maintenance Section will be found in that section dealing with the Office of the Secretary.

In recounting outstanding activities or programs of the department during calendar year 1982, as they affect the people of Louisiana, I would consider donation of an extensive wildlife management area by the Joyce Foundation of Chicago of lasting importance to present and future generations.

On October 12, 1982, the Joyce Foundation donated some 12,809 acres of prime wetlands in southeast Louisiana to the Louisiana Department of Wildlife and Fisheries. In donating this vast tract of wildlife habitat to the State, the Joyce Foundation also leased an additional 850 acres of land, adjoining the tract and providing easy access to it from Interstate Highway 55, to the wildlife department to be included in the wildlife management area so that it totals 13,659 acres.

The new wildlife area that was opened immediately to the public for hunting, fishing, and other forms of outdoor recreation, is located in the southern portion of Tangipahoa Parish, two miles south of Ponchatoula. It is near the existing Manchac Wildlife Management Area, and is easily accessible to hunters from Baton Rouge, New Orleans, Covington, Hammond, Slidell, and numerous communities in southeast Louisiana.

The new wildlife area open to the public is basically a wetland tract, consisting of cypress-tupelo timber with typical wetland understory growth providing ideal wildlife habitat.

Major game species found on the area are deer, swamp rabbit, and waterfowl. The primary importance to hunters will be the excellent duck hunting afforded by the wetlands.

Other wildlife found on the newly-acquired area include raccoon, nutria, muskrat, otter, mink and opossum. There is an important alligator population in the new wildlife management area.

Recreational fisheries in the area are provided by sloughs, small lakes and bayous.

It is significant to note that the donation of the Joyce Wildlife Management Area now brings the amount of land owned outright in the department's management area system to 343,000 acres. This is land that is dedicated for all time for public recreational use.

Hopefully, in the years immediately ahead additional acreage will be acquired to expand this statewide system.

In early May of 1982, the former Information Section and former Education Section were merged into the Information and Education Division, with division status similar to Enforcement, Game, Fish, Seafood, and Fur and Refuge.

Shortly afterwards, the new division was transferred from the Office of Wildlife to the Office of the Secretary, to better serve the entire department.

The merger of the two sections and creation of the division was one of the key recommendations under the reorganization of state government plan and eliminated duplication of efforts in many cases. It also prepared the department to bring about savings of funds, at the same time providing broader informational and educational services to the people of Louisiana.

A full report of the new division's activities will be found in those pages dealing with the Office of the Secretary.

Of great importance in this report is the fact that 1982 was a record year for the fishing industry. The National Marine Fisheries Service statistical department has revealed that the total Louisiana catch for 1982 was a new record, with the 1.6 billion pounds taken surpassing the 1.5 billion pounds caught in 1978. Louisiana led all other states and produced 20 percent of the nation's fisheries poundage.

Although shrimp poundage was down by 19 percent from the all-time record catch of 1981, the value of the catch for fishermen increased by 7 percent.

In 1982, a total of 57 million pounds of heads-off shrimp were landed at Louisiana ports. This was less than the 71 million pounds landed in 1981, but the dockside value to the fishermen was $146 million, compared to 1981's $136 million.

Oyster production was good in 1982, and approximately 8 million pounds of oyster meat brought oyster fishermen some $8 million.

Crab fishermen had another good year, with some 17 million pounds of crabs having a dockside value of $4 million.

Menhaden, small oily fish used in the manufacture of feed and other products, accounted for the greatest part of the 1.6 billion pounds of fisheries products.

By mid-1982, it became evident that a conflict was shaping up again between commercial fishermen and sport fishermen over utilization of Louisiana's speckled trout and redfish resources, a conflict that would be pressed upon the Louisiana Legislature as was the gill net issue in the mid-1970's.

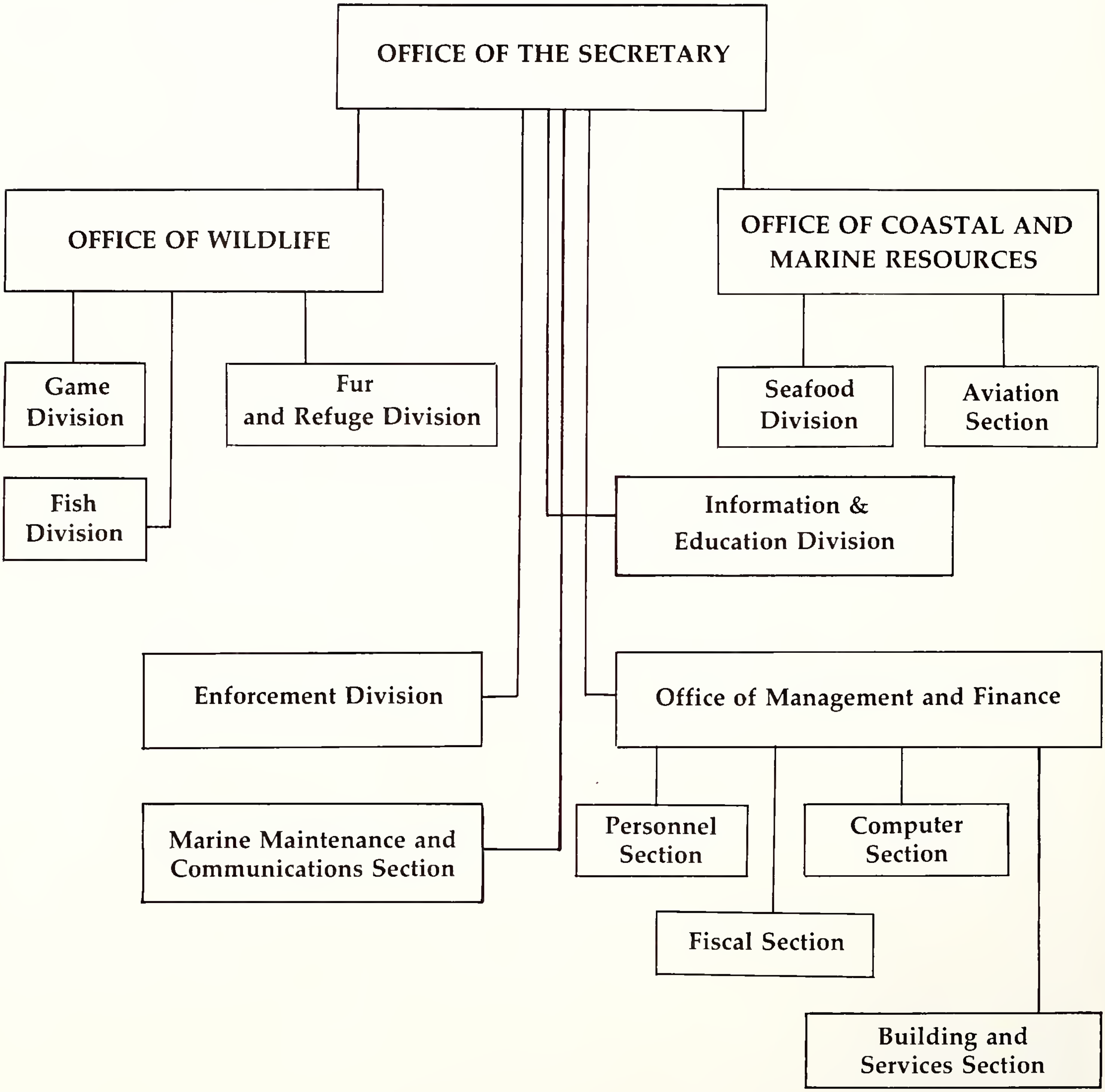
As Secretary of the Department of Wildlife and Fisheries, in an effort to forestall bitter conflict in the legislature and bring about a permanent, sound management program for these and other species of coastal finfish, I appointed a task force of department biologists to furnish me with a comprehensive report containing all available data on management of these species, in Louisiana as well as in other coastal states.

The task force completed its work in the fall of 1982 and a series of public hearings was scheduled for early 1983. It is planned that a comprehensive management program, acceptable to both user groups, will be presented to the 1983 Louisiana Legislature. This plan will include a long-range program of continuing research and management devoted to finfish by the Seafood Division of the department.

Respectfully submitted,

Jesse J. Guidry
Secretary

ADMINISTRATIVE STRUCTURE CHART



Office of the Secretary

As chief administrative officer of the Department of Wildlife and Fisheries, the secretary is responsible for all wildlife and fisheries resource management activities in Louisiana. He is also deeply involved in conservation matters vital to other states on both national and international levels. Primary objectives are to insure that the highest possible priorities are given at all times to wildlife and fisheries resources management and enhancement.

Although administration of four major divisions within the department is delegated to assistant secretaries, responsibility for administration of the Office of Management and Finance, the Enforcement Division, the Information and Education Division, and the Marine Maintenance and Communications Section remain directly in the Office of the Secretary.

Within this structure of the Office of the Secretary, the Office of Management and Finance, which includes the Personnel, Fiscal, Building and Services, and Computer Sections, is administered by the undersecretary.

Enforcement Division

The Enforcement Division is charged with enforcement of all of the laws enacted by the Louisiana Legislature applying to wildlife and fisheries resources, as well as applicable portions of the state's Boating Act.

In addition, the division assists federal enforcement agents in the enforcement of those laws pertaining to migratory wildlife and endangered species.

In times of emergency or natural disaster, the division cooperates fully with all other law enforcement agencies of the state, and is an integral part of the Civil Defense action plan whenever the need arises.

The Enforcement Division has a primary objective of carrying out its assigned duties in such a manner as to insure perpetuation of wildlife and fisheries resources and allow implementation of the technical works of the department's other divisions that can only be fully realized by compliance with all game and fish laws.

It should be realized that the duties performed by wildlife agents in this division give them broader responsibilities than mere enforcement of fish and game laws, and the required enforcement of boating regulations. Establishment of an image of true professionalism that the public can look to with confidence is vital to the effectiveness of the overall enforcement effort. In order to reach this goal, the Enforcement Division endeavors to select the most promising personnel, provide sound basic and continuing training for the wildlife agents, and maintain its own integrity through an active Internal Affairs Section.

This Internal Affairs Section, created in 1981 to investigate major allegations against Enforcement Division employees and, upon request of the Secretary, other departmental employees, was expanded in 1982 with the addition of another full-time investigator. Twenty investigations were conducted by this section in 1982.

The responsibility of processing new Enforcement Division employees also lies with the Internal Affairs Section, which also oversees the special agents' operations.

Of primary importance in the division's operations is protection of the state's economically important fisheries resources. The estimated total value of this vast fisheries industry, including participating fishermen, supply service industries, processing plants and related businesses is approximately $1,200,000,000.

In order to effectively patrol offshore waters where a preponderance of fishing operations take place, two large vessels for the division were budgeted and ordered in 1982. The initial cost of the vessels will be $600,000, and the annual operating cost of approximately $400,000 is small in comparison to the size and economic value of the industry to be properly policed by this division's offshore operations.

By law and of necessity, much of the Enforcement Division's time and effort is devoted to boating safety and proper boating activities on Louisiana's extensive waterways. Wildlife agents spent approximately 23,000 hours on water patrol and boating safety. A total of 10,108 citations were issued for violations relevant to boating. This represents approximately 40 percent of the total number of citations issued in 1982.

Highly supportive of this broad boating safety activity by the division is the fact there were 63 fatalities as a result of recreational boating activities in 1982, compared to 8 hunting-related deaths. Those statistics alone indicate a need for acceleration of the boating safety program.

Considerable thought has been given to placing this under the Enforcement Division, to be patterned after the hunter education program and there are a number of reasons for implementation of this in 1983.

After a thorough review of the procedures in all of the other states, the Louisiana Firearms and Hunter Education Program was placed under the Enforcement Division in the latter part of 1982, as it is in more than half of the individual states. The Hunter Education Section, restructured in 1982, is composed of six full time employees: a coordinator, four regional coordinators (each responsible for the program in two assigned regions), and a secretary. The section currently lists 940 volunteer instructors who help train approximately 10,000 students annually.

Although many enforcement agents previously were certified as volunteer instructors, one goal of the hunter education program for 1983 is instructor certification for all enforcement agents. This increase in manpower will greatly aid the section in attaining its goal of 20,000 certified students in 1983.

All expenses incurred by enforcement agents while performing hunter education duties, including salaries, will be charged to the federally funded hunter education program. Utilization of enforcement agents in the hunter safety program will therefore result in a substantial savings to the Conservation Fund, and make full use of available federal funds, which were not fully used in previous years.

The planned expansion of the hunter education program will enable the staff to better meet the demands of the public if hunter safety certification becomes mandatory in Louisiana as it is in 30 other states.

During 1982, the training staff of the Enforcement Division was increased with the addition of a Staff Development Specialist. This will result in expanded program development for the division. Present plans call for continuing educational opportunities for enforcement personnel.

During the year, the Federal Communications Commission approved a license for the Enforcement Division to operate on the 39.5 frequency. With this additional communications capacity, wildlife agents can communicate with Civil Defense personnel or any police department within range while on patrol. In 1983, the division plans to install an additional 100 radios to operate on this important frequency. This will provide all agents with this capacity, thus broadening the services of wildlife agents to the general public and other law enforcement agencies.

Of 58 new vehicles acquired in 1982, 49 were four-wheel-drive Ford Broncos, providing access to areas where wildlife agents were formerly unable to patrol. The division also received 22 three-wheel, all-terrain cycles. One was assigned to each enforcement district. This further allows agents to patrol areas previously inaccessible.

The total number of cases made in 1982 was 26,400. This marked a substantial increase over the 23,000 citations issued in 1981 for violations of hunting, fishing, trapping, and boating laws and regulations.

Marine Maintenance and Communications Section

Following the recommendation of the Governor's Cost Control Commission and with the concurrence of Governor Treen, it was decided that the marine maintenance portion of this section, which includes the facility at the New Basin Canal Wharf in New Orleans, would be phased out in early 1983. This determination was made as a cost-saving measure for the department.

The communications center is still operating at the wharf but will be relocated early in 1983. The communications center provides the department its only 24-hour-a-day radio operation. Radio operators are on duty around the clock to assure that outlying camps, boats, airplanes, and wildlife agents working at night have available routine and emergency radio communications capability.

Because this station is operated on a 24-hour basis, the department's toll-free number 1-800-442-2511 for reporting violations of fish and game laws, and boating accidents, was designated to the duties of the radio operators at this installation.

The radio repair shop installs and maintains the department's statewide communication system. The system now contains 33 base stations, approximately 600 mobile units, 82 walki-talki units, 68 boat radios and 8 aircraft radios. Besides maintaining a radio and electronic shop at the wharf, two vehicles are equipped to do on-the-spot repairs statewide.

The office and administrative branch of the section maintains repair and maintenance records on all electronic equipment used by the department, processes all warranty and insurance claims within the electronic field, and provides purchase specifications for all electronic supplies and equipment.

Information and Education Division

Operating directly under supervision of the Secretary, the primary function of the Information and Education Division is dissemination of information and educational material about all of the department's diversified programs, activities and accomplishments.

The division utilizes all media and informational/educational techniques in focusing state, national and international attention on the fact that Louisiana's wildlife and fisheries resources are renewable ones and that prudent and wise management of those resources is of great importance, economically and recreationally, to all of the people of Louisiana.

In conveying information to the public, the division has numerous tools at its disposal. It sends out approximately 150 news releases each year. In addition to the news releases there are periodic news features sent to selected newspapers with 5 × 7 glossy photographs. The division also supplies photographs, slides, and produces television and radio public service announcements.

News releases are sent to all Louisiana newspapers, radio and television stations, as well as to selected conservation publications and related agencies.

Division personnel also work with visiting out-of-state writers and photographers, and movie producers who are in Louisiana to prepare articles or illustrate articles about wildlife resources or the management of those resources, or who are in the state enagaged in movie production dealing with wildlife resources. This assistance often calls for accompanying out-of-state writers and photographers to areas where they may obtain their material.

One of the primary functions of the division is publication of the department's bimonthly magazine, *Louisiana Conservationist*. The magazine has a circulation of 210,000 and is printed and mailed for 25¢ a copy. The 32-page, full-color magazine is regarded as the department's most inexpensive and cost/effective contact with the general public in bringing the department's conservation program directly to the people of Louisiana.

The magazine during its 35-year history has won state, national and international awards and is regarded as one of the most positive and informative publications produced at a state level. It is sent to all residents who have expressed interest in the conservation, wise use and proper utilization of the state's wildlife and fisheries resources.

Out-of-state subscribers are limited to persons in the Armed Forces, conservation and natural resource libraries, state conservation agencies, and some government officials.

Although no new films were produced by the Audio/Visuals Section of the division in 1982, production was begun on a motion picture dealing with the department's role in managing wildlife resources.

Additionally, it is planned to produce a 15-minute movie in 1983 on sport fishing for striped bass.

Three slide shows and three 30-second television public service announcements were produced in 1982 by the Audio/Visuals Section of the division. Two of the latter dealt with boating safety and one promoted hunter safety.

In 1982 the division's film library filled 2271 requests for educational films to schools and conservation organizations.

The division's wildlife management educators presented 48 television programs and 48 radio programs during 1982. In addition to those scheduled television programs, the division supplied film or video tape to television stations to be used in connection with the opening of hunting, shrimping or trapping seasons.

The division's wildlife management educators presented 2230 programs to tens of thousands of citizens, in schools, colleges, churches, civic and sportsmen's groups, as well as Boy and Girl Scouts, 4-H Clubs and similar groups. Of these programs on general wildlife conservation, there were 156 devoted to boating safety and 749 to hunter safety.

Wildlife management educators erected 51 wildlife displays at various fairs, festivals and for special groups. The displays were open 121 days, and 39 of the displays were manned during the display days.

The Motorhome Display Van, featuring wildlife habitat displays, was sent to 14 locations throughout the state.

The division reports that requests from the public for information average as many as 50 telephone calls a day and approximately 75 letters daily.

Office of Management and Finance

The Office of Management and Finance, administered by the department undersecretary, is instrumental in the implementation of programs and acquisition of equipment by all divisions of the department. There are four sections within this office: Fiscal, Personnel, Computer, and Building and Services.

In February of 1982, the entire Office of Management and Finance was transferred from New Orleans to Baton Rouge, as were the Enforcement Division Headquarters and the administrative section of the Fur and Refuge Division. The administrative section of the Office of Coastal and Marine Resources will similarly be moved to Baton Rouge in early 1983. These transfers place all of the administrative personnel of the Department of Wildlife and Fisheries in Baton Rouge, closer to the Governor's Office, Civil Service, the Division of Administration and nineteen other state departments.

Throughout 1982, the Office of Management and Finance placed special emphasis on stepping up program analysis for the entire department. Through this analysis, programs in all department divisions and sections are evaluated to determine cost effectiveness, equipment efficiency, etc., in an effort to provide the best possible service to the people of Louisiana at the lowest possible cost.

Fiscal Section

The Fiscal Section is responsible for the entire financial system of the department, handling accounting, payroll, federal aid, purchasing, property control, auditing, commercial and sport license sales, and motorboat registration.

During 1982, the department issued 65,894 commercial licenses and 1,068,005 sport licenses. There were a total of 292,420 motorboats registered in Louisiana by the end of 1982, 44,581 of these newly registered that year.

The Department of Wildlife and Fisheries received revenue in the amount of $38,694,463 for the calendar year 1982. Monies collected were credited to the following funds:

Conservation Fund	
Taxes	$ 1,725,000
Royalties	11,900,000
Rental of land	800,000
Bonuses on land	132,676
License sales	6,530,000
Miscellaneous	358,000
	$21,445,676
Rockefeller Refuge Fund	
Royalties	$11,962,152
Interest	471,627
Other income	863,469
	$13,297,248
Marsh Island Fund	
Royalties	$ 493,121
Interest	1,385,113
Other income	2,037,605
	$ 3,915,839
Federal Funds	$ 2,900,000
Interagency Transfer	$ 410,000
L.O.O.P.	$ 260,000
Grand Total Revenue	$38,694,463

The department's budget for 1982 totaled $30,709,000 with monies allocated to the divisions and sections within the department as follows:

1%	Executive	$ 289,000
10%	Management and Finance	3,000,000
27%	Enforcement Division	8,300,000
11%	Fish Division	3,400,000
14%	Fur and Refuge Division	4,300,000
15%	Game Division	4,520,000
4%	Information and Education Division	1,200,000
2%	Marine Maintenance and Communications	500,000
1%	Aviation Section	300,000
19%	Seafood Division	4,900,000
		$30,709,000

Personnel Section

A computer terminal was placed in the Personnel Section in mid 1982 to allow personnel data, including adjustments in annual and sick leave, to be entered directly into the department's new computer. A Kardex filing system remains operational for the maintenance of service record cards for the department's 831 employees.

In 1982 the Personnel Section was significantly involved in the planning and implementation of the transfer of the Information and Education Division to the Office of the Secretary, transfer of the Hunter Education Section to the Enforcement Division, and transfer of the Ecological Services Section to the Office of Coastal and Marine Resources. The section also played an important role in the relocation of many department sections, including the entire Office of Management and Finance, from New Orleans to Baton Rouge. Because of the move, many employees left the department and new employees were hired to fill the vacancies in Baton Rouge.

An ongoing study was begun in 1982 by the Personnel Section to evaluate and reassign, as necessary, employee domiciles, in an effort to streamline division costs.

The section assists in participation by employees in formal in-service training programs which are designed to improve employee performance capabilities. Various publications pertaining to effective supervision and management are currently under subscription, and many employees have participated in functional training courses offered by institutions and organizations outside the department.

Future progress toward the ultimate goal of complete and comprehensive personnel management and training will, of course, be contingent upon the availability of funds and supporting personnel to implement and sustain additional programs which will enhance the quality of employee services to the state.

Building and Services Section

This section serves the important function of building maintenance for the Wildlife and Fisheries offices and provides an array of services to the department personnel, including: handling the department ingoing and outgoing mail; distributing office supplies; copying, folding and stapling of publications, memorandums etc.; and printing and mailing of department news releases.

Computer Section

The department formerly had three computer systems, but now has a single Univac 1100/60 computer, installed in early 1982. As a result, all department data processing, both scientific and administrative, and the entire department financial system, have been converted to the new computer system. During the conversion, a concerted effort has been made to enhance programs to improve time efficiency. This will decrease the amount of time required to process motorboat registrations, commercial and recreational licenses, the Louisiana Conservationist mailing list, etc., and thus provide better service to the people of Louisiana.

To most effectively use the new Univac 1100/60, a computer utilization committee was formed in 1982 with representatives from each of the department offices and the computer manufacturer. The primary goals of this committee are to set up computer training programs for department personnel and establish a list of priorities for the creation of new computer programs.

Office of Wildlife

The Office of Wildlife, supervised by one of two assistant secretaries reporting directly to the department secretary, is responsible for administration of three major divisions within the department: Fish, Game, and Fur & Refuge. Through these divisions and their numerous sections, the Office of Wildlife is responsible for the management of the state's wildlife and fisheries resources.

Fish Division

Louisiana's fishery resources are a vital part of the state's economy both from a recreational and commercial standpoint. The Fish Division is responsible for studying, managing, protecting and replenishing the fisheries of the state, and controlling undesirable aquatic vegetation that hampers management, navigation and fisherman access in Louisiana waterways.

The division conducts research and management programs and provides technical assistance. Certain projects that deal with sport fish restoration (research, survey, development or technical assistance) are funded wholly or partially through the Dingell-Johnson federal aid program.

There are two sections within the Fish Division: Fisheries, and Aquatic Plant Research and Control Sections.

Fisheries Section

The Fisheries Section is responsible for formulation of recommendations used to manage the fisheries resources located primarily in freshwater areas of the state. The section initiates and conducts fisheries surveys and research, development, and technical assistance projects. Personnel of the Fisheries Section are located statewide in eight districts that contain 6 to 9 parishes each.

One of the most important programs of the Fisheries Section is the Lake Management Project. Under this program, information is gained relating to fish populations, water quality and other pertinent data. In 1982, twenty-three lakes were sampled using rotenone. From the data collected, effective management plans are formulated as well as harvest regulations.

There are several special projects carried out which are designed to gather more specific information regarding certain lakes.

The Lake D'Arbonne and Bussey Lake creel surveys are continuing. These programs are designed to gather specific information concerning catch rates, number of annual efforts, etc.

Intensive study of the effects of drawdown on Lake D'Arbonne was completed in June, 1982 and will be coupled with the creel data in order to formulate recommendations concerning reservoir management. These data can then be expanded to assist in reservoir management statewide.

Detailed studies are also being conducted on Toledo Bend, Lake Bistineau, Calcasieu Lake and Larto-Saline Lakes which are designed to answer particular problems associated with lake management.

Farm Pond Extension Program Fisheries biologists provide advice and technical assistance to farm pond owners relating to the proper management and construction of private ponds and lakes. The goal of this project is to provide a maximum number of man-days of recreation from privately owned ponds. In 1982, advice was given on 1764 bodies of water, comprising 6636 acres. Largemouth bass and bluegill were stocked in 1290 of these ponds, which comprised a total of 3146 acres of water. Ponds ranged in size from 0.25 acres to 1000 acres.

Fish Hatchery Program The three state-owned fish hatcheries, comprising 50 acres, provided 103,570 largemouth bass, 2,273,417 bluegill and redear, and 3500 crappie fingerlings for stocking statewide. In addition to these fish, 18,925 Florida largemouth bass, 103,200 blue and channel catfish and 1,623,913 striped bass and striped bass x white bass crosses were stocked in Louisiana.

Florida Bass Program Florida largemouth bass were released in the Tchefuncte River and Pearl River Locks in 1981. An ongoing study is designed to investigate the success of these stockings and to determine if there is any effect on native largemouth bass.

Grass Carp (White Amur) Monitoring Program The Fisheries Section in cooperation with the LSU Cooperative Fisheries Research Unit is monitoring the invasion of grass carp into Louisiana. Grass carp larvae have been collected and identified in the lower Red and Atchafalaya Rivers, which verifies that natural reproduction is occurring within the state. Two juvenile grass carp have also been collected and identified.

The Fisheries Section is also surveying and recording the occurrence and capture of adult grass carp as they appear in various water bodies of the state.

Fish Kill Investigations Fisheries biologists were called on to determine the causes of approximately 85 fish kills statewide in 1982. Those found to be natural die-offs were investigated as to cause, and if possible, recommendations were made to correct the problem. Those kills which were determined to be from pollution were reported to the Department of Natural Resources.

Boat Ramp Maintenance The Fisheries Section was responsible for the inspection and maintenance of 43 public boat ramps and associated parking areas located throughout the state during 1982. The Governor's Cost Control Commission recently recommended that the Department of Wildlife and Fisheries be released from this task and the local parish governing body assume this responsibility. Appropriate steps are being taken to follow the Commission's recommendations.

University Cooperative Agreements Cooperative fisheries research is presently being conducted between the Fisheries Section and four universities. These include the LSU Cooperative Fisheries Research Unit, which is investigating natural reproduction of grass carp and striped bass in our river systems; University of Southwestern Louisiana, which is investigating improved techniques in pond culture of crawfish; Northeast Louisiana State University, which is analyzing pesticide residues in fish collected from north Louisiana lakes; and Auburn University, which is conducting research on the identification, diagnosis, and treatment of fish diseases and parasites.

Special Studies There are special fisheries needs which are being addressed by Fisheries Section biologists, including the "Movement of Estuarine Sports Fish", and the Calcasieu Lake seatrout project. These projects deal with the important species, speckled trout and redfish, and are designed to help alleviate the increasing management problems of these commercially and recreationally important fish.

Blue and channel catfish investigation is designed to answer questions regarding the length at maturity and spawning periods of blue and channel catfish in the Atchafalaya River. It is hoped that information gained will help in the formulation of regulations concerning the harvest of these species.

The flathead catfish production project is designed to establish procedures whereby large numbers of flathead catfish fingerlings will become available for stocking in lakes with stunted or overcrowded forage (bream and shad) populations.

Fisheries Section personnel are also actively engaged in a special project to survey the effects that the repeal of minimum size lengths on channel catfish will have on channel catfish populations. Commercial fishermen, fish market operators, and seafood restaurant owners are being interviewed on a statewide basis in regard to this matter. The repeal of minimum lengths on channel catfish until June 15, 1983, is a result of Senate Concurrent Resolution No. 53 passed in the 1982 Session of the Legislature.

Commercial Fish Farming Extension Program Fisheries Section biologists afford assistance and technical advice to commercial fish farmers upon request. Most requests for assistance come from catfish and crawfish farmers who seek advice in regards to pond construction, water quality, feeding techniques, and identification and treatment of fish diseases and parasites.

It is estimated by the LSU Extension Service that approximately 70,000 acres of commercial crawfish ponds or lakes were in production during 1982 in Louisiana, and produced a total crop of approximately 24,500,000 pounds.

The number of channel catfish farms has decreased to approximately 1400 acres compared to a peak of 4000 acres during 1973. It is felt that the competition of lower priced wild catfish and the high cost of labor and feed were major factors reducing the number of catfish farms.

Striped Bass Program The striped bass program is a statewide project which is designed to provide a biological control for unmanageable shad populations. In addition to providing control for shad populations, this fish is a highly desirable sportfish and is an extremely good food fish.

During the fiscal year 1982, 982,839 striped bass fingerlings and 641,074 striped bass x white bass crosses were stocked in 19 lakes statewide and an additional 139,971 striped bass fingerlings were stocked in coastal streams in an effort to reestablish coastal populations.

In 1982, intensive studies were conducted to determine the effect of these large predators on native fisheries.

Aquatic Plant Research and Control Section

This section conducts research on troublesome aquatic plants in Louisiana waters, provides technical information on control methods, and supervises and conducts a statewide program of spraying water hyacinths on public waters in Louisiana.

During the fiscal year 1981-82, the aquatic weed control program provided substantial benefits to 3.2 million Louisianians. The section effectively applied herbicide to 47,505 acres of water hyacinth infestation. This is an increase of approximately 9500 acres above the 1980-81 figure. An unusual period of water hyacinth seed germination has resulted in an increase from 340,000 to 434,200 acres of water hyacinth infestation in Louisiana waterbodies.

The major accomplishment in the biological control program was the successful establishment of overwintering populations of the water hyacinth moth. The addition of this specific insect should provide invaluable benefits to the water hyacinth control program in the future.

Aquatic weed density investigations and management recommendations were made on 27 lakes. The primary objective of this work was to obtain accurate records of aquatic weed infestation in Louisiana waterways so that a workable management plan could be prepared to obtain maximum control of aquatic weed problems.

Limited applications of herbicides were made to submersed aquatic weeds in the False River, Chef Menteur and North Shore areas. These applications were made to demonstrate to the local people the safe use of an effective herbicide. The results of these demonstrations will be used to formulate recommendations and application techniques in future submersed aquatic weed control work in these areas.

Ongoing projects of the Aquatic Plant Research and Control Section include:

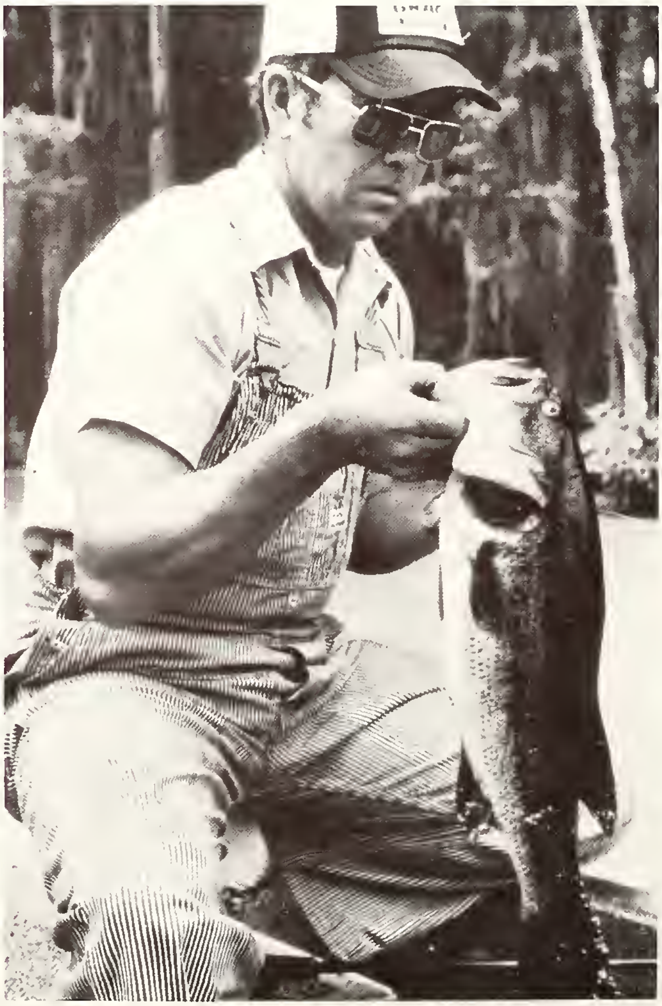
- A large-scale operations management test of insects and diseases for control of water hyacinth in Louisiana;
- Evaluation of new herbicides to determine their availability and effectiveness for use in aquatic weed control;
- Study of the effects of various aerial spray systems and additives on water hyacinth control to enable the aerial spray program to become safer and more cost effective;
- Study of hydrilla, a submersed aquatic plant that was discovered in Louisiana in 1973 and now is spreading in many areas of the state with the potential of becoming a more serious pest than water hyacinth in freshwater areas. Investigations will determine how environmental conditions and water fluctuations affect hydrilla, monitor its spread, and evaluate chemical, biological and mechanical methods of control; and,
- A study of chufa tuber and forage production within mature water elm - swamp privet zones, treated and untreated with specific herbicides, on Catahoula Lake to determine the loss of waterfowl food caused by the encroachment of water elm and swamp privet on the lake bed.

Game Division

The Game Division has the responsibility of preserving, maintaining, developing and, where feasible, increasing Louisiana's wildlife resources.

Within the Game Division is a Development Section in charge of development and maintenance of the department's wildlife management areas and other department maintenance and heavy equipment work; a Research Section that includes dove, deer, waterfowl and turkey studies; an Upland Game Studies Section that includes the "Acres for Wildlife" program and quail, woodcock and pheasant studies; an Animal Control Section; and a Forestry Section.

Most of the programs and activities of the Game Division are funded through the Pittman-Robertson federal aid program (where funds are 75% federal - 25% state) and are administered by the Federal Aid Office of the Game Division. The exceptions are land acquisition, animal control, and carpentry work.



Development Section

Wildlife Management Areas One of the most successful programs of the Louisiana Department of Wildlife and Fisheries has been the establishment and development of the wildlife management area system throughout the state.

Presently the department operates and manages 36 wildlife management areas (WMAs) comprising a total of approximately 800,000 acres. All areas are open to the public for hunting, fishing and other outdoor recreation.

In October of 1982, the Joyce Foundation of Chicago donated 12,809 acres of prime wetlands in southern Tangipahoa Parish to the Department of Wildlife and Fisheries to be included in the wildlife management area system. The Joyce Foundation also leased an additional 850 acres of land, adjoining the tract and providing easy access to it from Interstate Highway 55, to the department to be included in the new WMA so that it totals 13,659 acres.

The new Joyce WMA was opened immediately to the public for hunting, fishing, and other forms of outdoor recreation.

District Activities For wildlife management and administrative purposes in the Game Division, the state is divided into eight districts each with a district office, district supervisor and district biologists and technicians who are assigned to wildlife management areas or work throughout the district.

Activities in the districts include managing deer hunts on WMAs, answering animal nuisance calls, providing technical assistance, conducting control burns, trapping and banding waterfowl and turkey, conducting fur animal census, conducting deer range surveys, checking hunter bags, and giving programs to civic groups and hunting clubs, to name just a few.

District work is coordinated on the statewide level to provide data for better management of important wildlife species.

Research Section

The Research Section is responsible for gathering biological information concerning game birds and animals found in the state. These biological data are used to better manage the wildlife resources of Louisiana. The section is presently involved in research programs for doves, deer, waterfowl, turkeys and upland game birds. A research biologist is assigned to each of these programs and is responsible for the supervision of investigations of these wildlife species.

Doves During May 1982, the dove call-count survey was conducted in Louisiana as in all other states. The survey consists of counting cooing doves in the early morning hours along a series of 20-mile-long routes randomly located in the state. This annual survey of breeding doves serves as the basis for setting dove hunting regulations each year.

Three years ago, afternoon-only dove hunting regulations were changed to allow all-day hunting. A survey of randomly selected dove hunters conducted in September, 1982 indicated 58% of the hunters prefer all-day hunting, while 42% prefer afternoon-only hunting.

Louisiana participated in a nationwide research study from 1978 through 1980 to determine the impact of September hunting on the dove population. The study has now been completed and the final report was prepared in 1982. The study concluded that most dove nesting occurred in the spring and summer and that only a small portion of the total annual nesting attempts was exposed to hunting in September. Also, the study could not detect a difference in the survival of eggs and nestlings in hunted and non-hunted areas leading to a final conclusion that current regulations which allow September hunting had no measurable effect on the dove population.

Deer Managed deer hunts, open to the public, were conducted in 1981-82 on the state's wildlife management areas. On 18 of the major deer areas, daily check stations were operated by the department's biological staff. These stations recorded a total of 40,823 hunter efforts made by our sportsmen, and collected essential biological data from 1647 deer harvested.

Physical data including age, weight, antler development, reproduction and general physical quality are taken each year from deer killed during the managed hunts. This information is then analyzed, tabulated and compared to data previously taken from the respective area to determine what changes have occurred among deer of that particular herd. The information obtained allows us to keep a close check on the physical characteristics of the deer from each area, and serves as an effective means of measuring the efficiency of our management program; providing also for necessary refinement to better meet the needs of the deer herds and our hunting public.

Analysis and application of the 1981-82 WMA data were of prime importance in the formulation of season recommendations for the recent 1982-83 hunting season.

Annual inventories were made by staff biologists to evaluate deer habitats and the relative deer populations occupying them, in order to provide management recommendations. Supervision, coordination and direct assistance was provided by the deer study since these studies are an integral part of its research efforts. In addition to those conducted on WMAs, more than 200 separate surveys were made during 1982 in 59 parishes. Inventory of deer ranges, known as range surveys, enable our biological staff to remain knowledgeable concerning conditions of the deer ranges over the state and the herds within them; both of which are constantly changing due to natural and man-made factors.

Findings from these surveys were essential to the preparation of 1982-83 deer hunting season recommendations for the entire state. The deer study analyzes these findings, coordinates statewide and district efforts which they mandate, and maintains an accumulative file for immediate reference.

A new deer management program known as the Intensive Deer Management Unit Program (IDMU) for private lands was initiated in 1981 and continued in 1982. Special surveys and assistance were provided by biologists to 278 different participating clubs and hunting groups, more than twice those of 1981.

Another research project of the deer study is the investigation of diseases, parasites, and causes of mortality in wild animals. Veterinary health surveys were conducted on 15 separate deer herds of the state, two of these were on wildlife management areas. Indepth studies were made of Red River and Three Rivers WMA deer herds by the Southeastern Cooperative Wildlife Disease Study (SCWDS). Others were in conjunction with abomasal parasite count (APC) investigations, plus blood tests for hemorrhagic diseases. APC studies were made with the assistance of the LSU School of Veterinary Medicine in accordance with technology developed by the SCWDS. These studies included one herd each in Bienville, Natchitoches, Pointe Coupee, and Vermilion Parishes; two each in East Carroll and East Feliciana; and three in West Feliciana. Routine wildlife veterinary matters were investigated when and where wildlife only or wildlife-domestic livestock implications were involved. During 1982 these studies included captive waterfowl, wild rabbits, and mortality in hawks.

Deer study work during the past year included refinement and continuation of a new research project pertaining to illegal spotlighting of deer from public roads. The study involves the use of lifelike deer silhouettes with reflective eyes, placed in suspected night hunting localities. Biologists monitor the motorists-poacher response and collect a variety of valuable data that will be of use in learning more about this persistent problem and effectively combating it. Preliminary results have been very informative and have generated a high level of department interest. The study results will be analyzed by LSU Department of Experimental Statistics for possible expansion to a more comprehensive statewide project.

Waterfowl Aerial waterfowl surveys of Louisiana's coastal marshes and agricultural fields were conducted in September, November, December, and January. Waterfowl surveys are conducted to determine migration chronology and population distribution. During the latter part of November, heavy rains flooded much of the State resulting in the widespread distribution of ducks and geese throughout the State. Hunting success during the second split of the 1982-83 season was reported to be less than in the second split of the 1981-82 season.

The results of the Lacassine test concerning lead and steel shot has been made final and copies of the report are available.

The Louisiana Zoning Study, 1975-81, is now complete and a final report is being prepared. Preliminary results indicate that 60% of all waterfowl banded in the west zone were recovered in the Central Flyway and 50% of all ducks banded in Louisiana were recovered in the Central Flyway. Over 88,000 ducks were banded during this study.

A two-year study on white-fronted geese is being conducted to determine migraton chronology, size and distribution and other characteristics of this little-known species. A student with the LSU Cooperative Wildlife Research Unit is working on the project with a completion date of 1983.

In the summer of 1982, department personnel, using night-lighting techniques, captured over 100 mottled ducks and sent them to South Carolina as part of a trade for our turkey restoration project. This project was initiated in 1975.

Waterfowl disease outbreaks were held at a minimum during 1982. Only an occasional botulism outbreak occured in southwest Louisiana and these involved very few waterfowl. On one occasion, about 40 white-fronted geese were found dead and botulism was determined to be the cause of death.

In July 1982, department personnel conducted a survey of the prairies of Canada to get a first hand look at prime waterfowl production areas. The southern Canadian provinces of Alberta, Saskatchewan and Manitoba produce over 80% of all waterfowl in the Northern Hemisphere.

Turkey Turkey study work conducted in 1982 included primarily the continuation of ongoing investigations. Each year additional data is compiled and added to the accumulated information concerning the wild turkey in Louisiana.

Of primary interest is the field inspection and evaluation of turkey habitat throughout the state. This activity allows the Department to determine whether or not present seasons and management strategies are appropriate and if restocking should be considered. This survey and inventory procedure will eventually provide up-to-date knowledge about turkey habitat and turkey populations throughout the state. During 1982, eleven additional areas were inspected and evaluated.

In order to improve the efficiency of our turkey restoration activities, continued efforts to evaluate past turkey releases have been made. During 1982, five additional areas were evaluated and the habitat characteristics and other pertinent data concerning each area were recorded. In the near future the data from all accumulated evaluations will be analyzed and the desirable characteristics and habitat factors will be identified. This procedure will allow us to be more efficient in the selection of turkey restoration areas.

Additional data on wild turkey food habits were collected in 1982. Crops were collected from harvested birds and droppings were picked up in the field. Detailed analysis is made of all sample material examined and the findings recorded.

During 1982, a cooperative study with International Paper Company was initiated. This study is designed to provide information on the food habits of wild turkeys in the sycamore plantations of the batture regions along the Mississippi River. Forty-one turkeys were collected for this study. In addition to food habit analysis, turkeys collected were surveyed for diseases, parasites, pesticide residues, and general physical characteristics.

Thirty birds were trapped during our 1982 statewide turkey trapping operations. Although our departmental effort was consistent with previous years, trapping was generally unsuccessful. It is believed that this poor success was attributable to the bumper crop of beech mast produced the previous fall (1981). Additionally, three birds were received from Arkansas as part of a trade for mottled ducks.

Upland Game Studies Section

Acres for Wildlife Participation in the "Acres for Wildlife" habitat improvement program increased 30 percent in 1982 over 1981, with 570 landowners and 446,000 acres now enrolled. The addition of another biologist in 1982 has allowed the program to reach 4-H clubs and the Boy Scouts through parish school systems throughout the state. Program biologists inspected land, prepared management plans, and provided planting for all participants requesting our services.

Quail Upland game development work continued on wildlife management areas and private lands open to the public by cooperative management agreements. Food plots totalling 600 acres were planted and additional acreage was bushhogged, disced, or control-burned by department personnel. Recommendations designed to benefit quail and other wildlife were presented to timber company personnel. A fall whistling census project was conducted on Fort Polk Wildlife Management Area and adjacent forested lands.

Woodcock Research on the egg development of wintering woodcock was concluded in 1982. Woodcock were collected the first two weeks of February for a three year period ending on February 14, 1982. A total of 837 woodcock providing a usable sample of 433 females was obtained. No eggs were found and laboratory measurements indicated that approximately four percent of the sample were resident nesters.

Pheasant Pheasant releases in Cameron and Vermilion parishes were censused using the crowing cock technique and by using bird dogs. Data indicate an increase in population levels and successful nesting was documented on one release area. Fifty birds from Idaho were released at a new site southeast of Lake Charles. Observations by local residents indicate nesting occurred during the summer of 1982.

Oaks for Wildlife Acorns collected by department personnel, private individuals, and conservation groups were delivered to the Department of Forestry nursery in Columbia for planting. Approximately 80,000 seedlings were planted by private citizens and wildlife management personnel.

Animal Control Section

During 1982, the Animal Control Section received 425 requests for assistance from landowners. Beaver damage accounted for 80% of the requests with the remaining 20% being mainly for coyote damage.

Other species removed at landowner requests were red fox, raccoon, domestic and feral dogs and bobcat.

Four trappers were assigned to Black, Saline, Iatt, Anacoco and Vernon Lakes during the alligator season to collect data for alligator research.

In addition several trapping clinics were given for interested landowners.

Nuisance animals removed during the year included 118 coyotes, 176 beaver, 13 dogs, 3 skunks, 1 red fox, 1 gray fox, 18 opossum, and 3 raccoon.

Forestry Section

The forestry section of the Game Division is responsible for forest management on 13 state-owned wildlife management areas totalling 260,000 acres. Forest management was non-existent on these timbered tracts prior to purchase by the Department as evidence indicates that only the best trees were removed. This resulted in the present stands of undesirable species of poor quality and cull trees. The Department now has the task of reversing this situation to improve wildlife habitat and at the same time produce quality timber.

General directional forest management plans for these areas have been made and a detailed timber management plan for each WMA is presently being formulated. In 1982, forest management plans were completed for the Pearl River WMA in southeast Louisiana and Saline WMA in central Louisiana. Preliminary work, including timber cruising and type-mapping on the Ouachita, Loggy Bayou, Three Rivers and Red River WMAs was also accomplished during 1982.

Fur and Refuge Division

The activities of the Fur and Refuge Division can be divided into three major categories: managing land which the department owns or leases; research into new and improved management practices for the state's fur, alligator and other wildlife resources; and direct management and supervision of the state's fur and alligator resources.

Land Management

The Fur and Refuge Division is responsible for the management, improvement, and protection of five refuges and four wildlife management areas. With the exception of Coulee Wildlife Refuge, all of the areas are in the coastal marsh zone of South Louisiana. Refuges comprise 177,000 acres and wildlife management areas 251,000 acres.

Management practices employed on the refuges and wildlife management areas are primarily directed towards improving wetlands for resident and migratory waterfowl. The multiple-use management concept is used wherever feasible, so that many other aquatic-based animals, including furbearers, fish, and resident game and nongame birds, also benefit from the management.

Because of their location at the terminal end of the Mississippi/Central flyways, Louisiana coastal marshes are critically important to a large percentage of the continental United States wintering waterfowl population. Fur and Refuge Division lands host several million ducks, geese, coots, and wading birds each year. The areas are likewise very strategically located for use by transient birds which winter in Central and South America.

Public demand for recreational use on refuges and wildlife management areas continues to increase. Sport fishing, shrimping, crabbing, and nature study are very popular activities. Hunting and fishing are the two most popular activities on wildlife management areas.

Monies derived from mineral activities have added greatly to the operations of the department. To date approximately 200,000 acres of wildlife habitat have been purchased with money from Marsh Island Wildlife Refuge mineral activities. In addition to providing an operations budget for the Fur and Refuge Division, interest-bearing trust funds for Rockefeller and Marsh Island Refuges were built up to provide for long-range financial security for refuge management programs. Rockefeller Refuge Scholarship funding provides for up to 200 one-thousand dollar scholarships each year for Louisiana students engaged in the study of science. Considerable funding went into public conservation education programs.

An extensive law enforcement program is carried out on all Fur and Refuge Division managed property. Mineral activities on all the areas are closely monitored.

Coulee Wildlife Refuge is a privately owned refuge located in Morehouse Parish and leased to the department free of charge. During 1982 a large water well was installed in the impoundment on the refuge to insure stable water levels during the winter period when this area serves as host to thousands of migrant waterfowl as they make their way south into the state. Future considerations should be given to purchasing this property to assure future water habitat.

Saint Tammany Wildlife Refuge comprises a narrow band of marshland lying adjacent to the north shore of Lake Pontchartrain. It serves primarily as a rest area for wintering waterfowl. Due to its location and with gunning pressure increasing in the surrounding marsh area, the importance and function of this refuge become more crucial every year. Future plans should include the acquisition of adjacent property in order that the full potential of the refuge may be reached.

Rockefeller Refuge, the largest and most highly developed wildlife area in the Fur and Refuge Division, received extensive water control structure repairs during 1982. Both replacements and new structures have been added in order to more efficiently control salt water intrusion in marshes adjacent to the Gulf of Mexico and water levels in the impoundments.

In 1982, 35 wakefield weirs on Marsh Island Refuge were examined and determined to need repairs. Renovation work on these weirs is now in progress. These water control structures enhance the production of valuable waterfowl food plants such as widgeon grass, and najas by stabilizing water levels and in some cases reducing turbidity. With the increase in acquatic production, Marsh Island has served to winter large concentrations of waterfowl throughout the winter periods. Also, stabilization of water levels during the spring and summer months has added greatly to the production of local nesting birds, primarily the mottled duck, a very important bird in the hunters bag along the coast of Louisiana. Alligator populations continued to increase, especially since the renovation work has been completed. Acquatic animals such as alligator depend largely on stable water levels during the summer for nesting and later as brooding habitat for their offspring.

State Wildlife Refuge located on the western shore of Vermilion Bay was donated to the state in 1911. This 13,000 acre tract, one of the first wildlife refuges of its kind in the United States, serves primarily as a wintering area for some of the largest concentrations of blue/snow geese in Southwest Louisiana. Several low level weirs have been installed in the natural drainage patterns in order to enhance production of food organisms necessary for wintering waterfowl, furbearers, and estaurine-dependent species which periodically inhabit the area. A carefully controlled burning program has been underway on the refuge for many years. During the fall and winter periods the annual rough is burned off making root systems and the tender succulent regrowth more palatable to the tremendous concentrations of blue/snow geese that frequent the refuge during their winter stay.

The Atchafalaya Delta Wildlife Management area, one of the largest and most recent land acquisitions of the department, has the potential of being one of the most productive and dynamic wildlife management areas on the North American Continent. Due to sediment deposits created by the Atchafalaya River, the land area of Atchafalaya Delta is accreting by some 1000 acres annually. This new delta formation serves as host to hundreds of thousands of waterfowl annually. Since acquisition of Atchafalaya Delta by the department, waterfowl hunters have had the opportunity to use this area. Camping and mooring sites constructed by department personnel have provided hunters a safe place to overnight.

Salvador Wildlife Management Area, located in St. Charles parish a short drive from New Orleans, provides excellent habitat for waterfowl, an abundance of alligators, freshwater fish, and furbearing animals. During 1982, a water control structure with a set of boat rollers was installed on the north end of the property.

Pointe Au Chien Wildlife Management Area, located in lower Terrebonne and Lafourche parishes, comprises some 30,000 acres of coastal marshland and provides excellent waterfowl hunting and excellent saltwater fishing. Due to its location, Pointe Au Chien is subjected to much saltwater intrusion. As a result of recent mineral development and mitigation, an extensive development project is currently underway. Several wakefield weirs have been proposed and are currently in the planning stages. Also, earthen dams are being installed to prevent tidal fluctuations and saltwater intrusion. With the past history of mineral development in this area, extensive marsh management programs will have to be undertaken if the productivity of the ecosystem of Pointe Au Chien is to be maintained.

Pass A Loutre Wildlife Management Area, located at the mouth of the Mississippi River, contains some 66,000 acres of active delta marshland. This area has undergone drastic ecological changes in recent times due to a combination of man-made and natural environmental factors. Studies are now underway to attempt several freshwater introduction projects. These projects are aimed at rebuilding lands with silt-laden Mississippi River water in areas experiencing subsidence. One such study is being initiated on Pass A Loutre. The study area has been selected and the feasibility study will begin in the near future. Other pilot projects of this nature have proven very successful and it is hoped that the Pass A Loutre project will rectify some of the land loss occurring in the lower delta region.

Research

The primary responsibilities of the Research Section of the Fur and Refuge Division are: developing new and evaluating present marsh management practices for fish and wildlife; life history study of the alligator, waterfowl, and furbearers; alligator culture study; pond culture study of several species of marine and freshwater fishes; and the study of population trends of fishes utilizing refuges and adjacent estaurine areas. These studies are conducted on the various refuges and wildlife management areas of the division as well as on privately-owned property and public lakes. Personnel of the division spend considerable time consulting with landowners interested in marsh management, alligator farming, and catfish - crawfish culture. Professional expertise is provided for the implementation of international, federal, and state legislation/regulations governing the wise use of alligators and furbearers.

One of the most notable research projects carried out over the years by this division has been a basic life history study of the American alligator. Studies investigating temperature-sex dependence, stress factors, and reproductive biology have added greatly to the general knowledge of the alligator and have greatly benefited the alligator/crocodile farming industry throughout the world. The alligator research plan has developed into one of the most productive wildlife programs in the state in that through a comprehensive twenty year study information was generated that produced management plans which are currently in practice statewide. It was through the information generated by this research program that the alligator was delisted from the federal list of endangered species and transferred from Appendix I to Appendix II of CITES. Also, this research produced the systematics for an annual inventory in order to manage the alligator on a sustained yield harvest basis. Today, the alligator industry is worth approximately 2 million dollars annually to the people of the State of Louisiana.

Two of the most significant pond culture experiments at Rockefeller have dealt with striped bass and Malaysian prawn. Continued cooperation with the Fish Division resulted in the stocking of 136,550 striped bass in the Mermentau River system. Since 1972, 1,061,000 fish reared at Rockefeller have been placed in the Calcasieu River and 487,000 in the Mermentau River systems in an attempt to establish this species. Sport fishermen of southwest Louisiana are now catching fish as a result of this project.

Studies in 1982 with various supplemental feeds for prawn were also noteworthy. These studies indicate rice hay, range pellets or similar agricultural by-products may have potential as forage to supplement pelletized rations, but further research is required to quantify optimum loading rates, nutritional contributions and effects on water quality.

Rockefeller Refuge has been the site of the Division's research center since 1952; however, with increases in research responsibilities, additional personnel have been placed in New Iberia, Minden, and Monroe. Along with an upland research program on the American alligator, these additional technical staffs are primarily involved in furbearer research throughout the state.

Findings from the various research projects enable Division biologists to make definite plans for the wise use of the 450,000 acres owned and managed by the Department for fish and wildlife through its Fur and Refuge Division. Results from these studies are published in technical journals or circulars with national and international distribution. Also, this information is made available to private landowners interested in marsh management for both fish and wildlife.

Personnel of the Fur and Refuge Division traveled extensively to national and international meetings during 1982, presenting findings from the various research projects. Also, during the past year, the technical staff conducted several 3-day alligator symposia in conjunction with the U. S. Fish and Wildlife Service, International Affairs Office. These symposia were attended by technical representatives from South America, Central America, and India. The information presented at these meetings was designed to assist these foreign nations in establishing a research/management program in their respective countries.

The Fur and Refuge Division hosted the "Chenier Plain Ecosystem of Louisiana Workshop" in 1982. This meeting which was co-sponsored by the American Fisheries Society brought marsh scientists from across the northern gulf coast together for a very productive gathering.

The Fur and Refuge Division provides fundings to the Louisiana Cooperative Wildlife Research Unit at Louisiana State University and assistantships for numerous other university research grants. This funding has provided additional short-term studies by outside technical personnel. These are probably some of the most productive research projects in the department.

During 1982, 14 technical papers were published and approximately 35 technical projects were begun or continued.

Resource Management

The Fur and Refuge Division has the responsibility of managing the fur and alligator resources of the state. The division's overall management goal is to maintain or improve the resource base while allowing optimum utilization. This statewide resource management has two components. First, active management, is in the form of recommendations made to landowners or managers to maintain or improve habitat conditions for one or more species of fur animals. These recommendations are based on the results of biological research and they can be rather simple, such as a decision about water level, or they may be complex, involving a major shift in management practices. Demands for management assistance are increasing annually with deteriorating coastal marsh. The loss of marshland as a result of a lack of fresh water, subsidence, and saltwater intrusion continues to place greater demands on remaining marsh areas. Recommendations are an attempt to encourage landowners to manage their marsh acreage in a productive manner and thus create an economic incentive that will insure that these areas remain wetlands.

The second component of the division's resource management is the harvest program. Rules, regulations and some changes in legislation occur on an annual basis. The development and implementation of the trapping and alligator seasons require 40% of the total technical staff time. These seasons involve over 11,000 trappers and 1200 alligator hunters statewide.

Harvest data for the 1981-82 trapping season showed over 1.6 million pelts taken; however, total value was down from 1980-81 to $8 million. This drop was due to lower pelt prices for all species and was generally related to world economic conditions. The weak economy in West Germany had the greatest impact on price since it is a major market for our muskrat and nutria.

The 1982 statewide alligator season resulted in the harvest of 16,500 alligators with an estimated value of approximately $1.6 million.

Office of Coastal and Marine Resources

The Office of Coastal and Marine Resources manages the renewable seafood resources of the state and is headed by one of the department's two assistant secretaries. This office is comprised of the Seafood Division, the Aviation Section, and the Ecological Studies Section, which was transferred in 1982 to this office from the Office of Wildlife.

The Seafood Division traces its roots back to a program initiated in 1879 in recognition of the value of Louisiana's renewable oyster resources. Subsequent programs were later developed to protect, manage, study, and effectively utilize all commercially valuable seafood resources of the state of Louisiana, which have an annual dockside value in excess of $100,000,000. This division is divided into nine distinct sections: administration, fisheries management, research at the Lyle S. St. Amant Marine Laboratory, oyster lease survey, statewide monitoring of seismographic activities, research in and monitoring of hydrological conditions along the coast, evaluation of coastal use permits issued by the Army Corps of Engineers, Loop (Louisiana Offshore Oil Port) monitoring activities, and fish kill investigations.

The Aviation Section consists of three full-time pilots who play an important role in the department's law enforcement work, inventories of wildlife, surveys of ranges, and other activities requiring aircraft.

The Ecological Studies Section evaluates and comments on Section 10 and Section 404B permit applications to the U. S. Army Corps of Engineers, administers the Scenic River System of the state, comments on various environmental impact statements on projects throughout the state, and serves as a clearinghouse for information on endangered and threatened species in Louisiana.

Seafood Division

Administrative Section

The administrative section controls the budgetary, personnel, and policy functions of the division. Its technical and administrative personnel also perform in various management and research activities.

The division provides fisheries expertise for fishery management task forces and assists in the preparation of fishery management plans. The department was represented on the Gulf of Mexico Fishery Management Council, which prepares management plans for those species occurring predominately in the federally controlled Fishery Conservation Zone, and on the Gulf States Marine Fisheries Commission (GSMFC) which is an organization of the five states which border the Gulf of Mexico. The GSMFC provides a forum for cooperation among these states, and an opportunity to address marine fisheries management problems in a cooperative manner.

Other administrative personnel worked to compile and edit a master file of all historical data gathered coastwide in Louisiana by the division. They also began work to transfer operations onto the UNIVAC 1100/60 computer recently acquired by the department.

The section administers various permits issued to individuals who engage in marine fisheries activities not specifically sanctioned by law: 53 Scientific Collecting Permits were issued to collect fish and other marine organisms in the course of research projects or academic studies, 20 baitfishing permits were issued to commercial fishermen wishing to market bait shrimp between the spring and fall inshore shrimp seasons, and 66 experimental fishery permits were issued to fishermen to harvest underutilized species or to assess the use of experimental gear (see Fisheries Management Section).

Under the supervision of the Federal Aid Coordinator, the results of two projects, federally funded under PL 88-309, were published, and a new five year project, "Research, Development and Management of Louisiana's Coastal Fisheries" was begun.

Seismic Section

Louisiana's coastal area has an abundance of wildlife, including the highly valuable furbearers, oysters, shrimp, and waterfowl. It also has vast deposits of oil and gas, concentrated around deeply buried structures with little or no surface indication of their presence. Of the many types of instruments used in discovering these structures, the seismograph is the most widely used in Louisiana.

Seismographic exploration consists of the measuring of shock waves created by dynamite or other energy sources. Thus, the state was initially confronted with two apparently irreconcilable forces. On one hand were the trappers and fishermen, utterly dependent on forms of renewable wildlife resources thought to be highly sensitive to dynamite shock waves; and on the other, the oil and gas companies whose very existence depended on the discovery of new reserves. A compromise was worked out between the oil and gas companies and representatives of the trappers and fishermen, and regulations governing seismic work in Louisiana were promulgated.

To make comprehensive supervision possible, no company is allowed to conduct seismographic work without first securing a permit from the department. Seismic agents are assigned to one or more crews, and reports on the activities of the crew are filed weekly by the agents. The seismic agent's duties are to inspect the work of field survey crews engaged in searching for oil formations in order to prevent the destruction of, or injury to, fish, oysters or other natural resources; he checks the discharge of explosives and other energy sources for compliance with the rules and regulations governing seismic operations set by the department. He observes that no littering occurs, and no pipes or other materials are discarded or left standing in the water or land without being properly lighted and marked. He keeps records and makes daily reports on the number of charges fired, hole depths, effects on wildlife, and other matters relating to the activities of seismic crews.

In 1982 there were 60 seismic crews with agents and 12 offshore crews without agents permitted to work in Louisiana; the section had 31 seismic agents, three field supervisors, and a section head.

All expenditures for seismographic supervision provided by the department are covered completely by a fee charged seismographic companies operating in Louisiana.

Oyster Lease Survey Section

The most significant occurrence in 1982 was the lifting of the moratorium on the taking of applications for waterbottoms to culture oysters. This moratorium had been imposed by the Wildlife and Fisheries Commission in April, 1978, because there was a large backlog of applications not yet processed into leases. While there was still a backlog, the commission felt a responsibility to provide a recourse for those individuals desiring to enter the fishery. The moratorium was lifted conditionally for those applicants who agreed to hire a private surveyor to survey the lease application. Appointments were made to take applications beginning on May 3, 1982 on a first-come-first-served basis; appointments were taken until June 4.

During 1982, 714 applications were taken as a result of lifting the moratorium; added to this number were 301 applications received as a result of 15 year expiration and automatic renewal of existing leases. The number of surveys made was 596; section surveyors made 327 of these surveys, private surveyors made 269. A total of 709 leases were calculated, plotted, drawn and issued (440 made by department surveyors; 269 made by private surveyors).

The following number of licenses were sold: 94 shop and resale, 1095 tonnage, and 481 dredging. In addition 43 undersize dredge permits were issued. Revenues collected were $175,781 in application fees, and $544,613 in lease rental.

The federally funded (PL 88-309) "Permanent Monuments for Oyster Lease Surveying" development project is placing and maintaining a network of permanent survey monuments throughout the oyster producing area of the coast; 210 monuments were established and plotted, adding approximately 150 square miles of coast to monument control.

Fisheries Management Section

Shrimp Total shrimp landings for Louisiana in 1982 were reported to be 57,248,000 pounds, heads off. U. S. cold storage holdings of shrimp, as of December 31, was 58,188,000 pounds, the smallest inventory for the five year period 1978-1982. As a result, price structure for the brown shrimp stock was exceptionally strong with record prices reported for all counts of brown shrimp. In spite of the average production level, price levels resulted in the spring season being a most profitable one for the fishermen.

Hydrological and biological sampling indicated the 1982 spring shrimp season would produce less shrimp than the record 1981 season. Recruitment of shrimp postlarvae into the estuary was sporadic; growth of existing juveniles was slow. High river stages and spring rains reduced salinities in the nursery areas. In 1981 there were nearly 3 million acres with salinities above 10 ppt, while in 1982 only about 1.5 million acres were available. The cold water from melting snow and spring rains, along with the persistent passage of cool fronts, reduced water temperatures to below the range for maximum growth. In 1981 there were 0 hours in which water temperatures were below 20°C after April 8 compared to 1982 when there were approximately 80 hours below 20°C.

The state's inside waters were opened by zones. At 12:01 AM on May 17, Zone 2 (the area from Southwest Pass of the Mississippi River to the westernmost shore of Vermilion Bay) was opened to shrimping; and on May 24, Zone 1 (the area from Southwest Pass to the Mississippi State Line) and Zone 3 (the area from the western shore of Vermilion Bay to the Texas State Line) were opened to shrimping.

Surveys of fishermen and commercial docks during the opening week of the season in Zone 2 indicated the season was off to an average start. Many of the docks on opening day were pleased with the amount of shrimp being landed, and some even reported the season's start to be better than 1981. The commercial catch varied significantly from boat to boat in both catch and grade of shrimp over a very short distance. During the last two weeks of May, hydrological conditions all across Louisiana's coast improved and some late recruitment occurred. The commercial catch of brown shrimp offshore and white shrimp both inshore and offshore during the summer and fall was well below that of 1981.

Dockside shrimp prices remained relatively stable and were significantly higher than 1981. Prices for shrimp were, by the end of the year, as much as 100 percent above 1981 levels.

Oysters Monitoring of the oyster seed grounds and public reefs is an activity to which considerable time is devoted. The information gathered in these activities is used to make technical recommendations concerning the opening and closing of seasons. In addition to collecting production data from the seed grounds, both biological and hydrological data are collected. Spat (young oysters) are monitored through devices called Butler Plates which are deployed and collected weekly. Oyster mortality and size distribution on specific reefs are monitored by a series of dredge samples which are taken monthly. Both live oysters and recent dead shells taken in these samples are analyzed. Hydrological readings are also taken at a series of permanent stations on the seed grounds. These weekly readings provide documentation of both short-term and long-term changes in water quality, which may affect the oyster production on the seed grounds.

The Bay Gardene oyster seed ground was closed in 1982. Oyster production on the public reefs east of the Mississippi River was 691,172 sacks of oysters larger than 3″ and 198,481 barrels of seed oysters. A special shell plant consisting of 2400 cubic yards of clam shell was made in Bay Gardene. This shell plant was funded by Gulf Oil to replace reef damaged while laying a 6 inch pipeline through Black Bay.

Both Bay Junop and Sister Lake oyster seed grounds located in Terrebonne Parish were open to commercial oyster fishing. As a result of shell plantings in 1979 and near optimum hydrological conditions, oyster production in 1982 was the highest in recent years.

Production from Bay Junop during that portion of the season occurring in calendar year 1982 was 3575 sacks of commercial oysters and 62 barrels of seed oysters. This raised the production total from Bay Junop for the 1981-82 season to a record 15,641 sacks of commercial oysters and 1701 barrels of seed oysters.

Square meter samples in Sister Lake in June, indicated there were in excess of 150,000 barrels of oysters available for harvest. From September 8, when the season opened, through November 23, when Sister Lake was closed by the Health Department, a total of 69,652 sacks and 45,467 barrels (combined total of 80,293 barrels) of oysters were harvested. This is the largest amount of oysters taken out of the lake since the 1953-54 season when 90,000 barrels were harvested. When Sister Lake was closed, due to high bacteria counts in water samples, there were still substantial quantities of oysters remaining in the lake.

There were three significant events with regard to oysters west of the Mississippi River, including the oyster seed grounds located in Terrebonne Parish, which occurred during the year. First, was a record number of oysters available for harvest as indicated by the square meter samples and subsequent commercial harvest. Second, on September 14, the state of North Carolina placed an embargo on Louisiana oysters as a result of elevated fecal coliform levels in the oyster meat. This embargo lasted for six weeks and it was estimated to have cost Louisiana oyster fishermen approximately $500,000 worth of business. The third, and probably most significant event pertaining to oysters, began during the first week of November. As a result of over 400 cases of gastroenteritis during the first two weeks of November, the Sister Lake oyster seed ground was closed on November 19. On November 23, large areas of Plaquemines, Jefferson, Lafourche and Terrebonne Parishes and Barataria Bay were closed to oyster harvesting by the Departments of Health and Human Resources and Wildlife and Fisheries, as a result of shellfish-implicated illness.

Subsequent cooperative water sampling by the Department of Health and Human Resources and the Department of Wildlife and Fisheries indicated coliform counts exceeded the National Shellfish Sanitation Guidelines throughout most of western Terrebonne Parish. The source of the contamination in this area appears to be coming from two areas: the city of Houma and the Atchafalaya River. By the end of December, an intense cooperative investigation was being conducted by the Departments of Natural Resources, Health and Human Resources, and Wildlife and Fisheries.

Environmental conditions for Southwest Louisiana, in particular the Calcasieu Lake system, were not conducive to oyster survival and growth. As a result of near drought conditions that prevailed during the year, considerable mortality resulted from high salinity conditions. Since seasonal production encompasses two calendar years (November 1981 - March 1982) production figures for 1982 include two months of 1981. The reported production for this period was 100,000 sacks for Calcasieu Lake. (one million pounds meat). Sport production was significant; however, the actual figure is not available. Preliminary indications are that this year's production will be down considerably from the 1981 harvest of 100,000 sacks.

A series of oil spills in Black Bay culminated in a closure of the Bay to oyster fishing. These spills occurred in February and March. Reports, complete with 35mm color slides, were compiled and presented at a special meeting at the Department of Natural Resources Building in Baton Rouge. Sampling efforts coordinated with the U. S. Coast Guard resulted in "fingerprint" matches between various slicks and wellheads or platforms.

Crabs Catches of blue crab during the first six months of the year, by both commercial crab fishermen and shrimp trawlers, were significantly below that of past years. The dockside price of blue crabs ranged from 19¢ to 55¢ per pound.

In Terrebonne Parish, as a result of increased salinities during 1981 and 1982, the catch of stone crabs by commercial crab fishermen increased significantly. By September, some of the fishermen had found a market for the claws and were selling them to restaurants for $2.50/pound. The production of soft shell crabs has been increasing over the past several years. This a seasonal operation, primarily during April and May. Some fishermen were shedding as many as 150-200 crabs a day and selling them to the restaurants for $1.00 to $1.50 per crab.

Crab production in Lake Pontchartrain was down from previous years and seemed to follow a coastwide cyclic phenomenon.

Two reports of major significance were completed. These were "A Profile of the Blue Crab Fishery of the Gulf of Mexico" and "Proceedings of the Blue Crab Colloquim". These Gulfwide cooperative efforts were sponsored by the Gulf States Marine Fisheries Commission.

Research The completion report was prepared for a federally funded (PL 88-309) project entitled "A Study of Gulf Menhaden, *Brevoortia patronus,* in Louisiana". A portion of the completion report will be published as a LDWF Technical Bulletin during 1983. PL 88-309 Project 3-43-R, "An Evaluation of Gill Nets of Various Mesh Sizes" was completed and published.

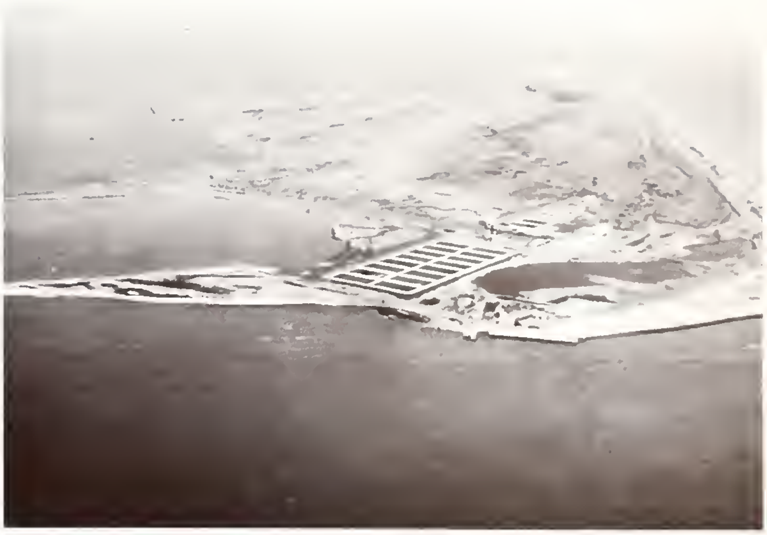
The second year of field sampling with wing nets was completed. This project involves sampling with two 6′ × 6′ stationary wing nets during the entire ebb phase of the tidal cycle. Samples were taken on randomly selected days, on each (new and full) moon phase. The nets were constructed of ⅝″ bar mesh (1-¼″ stretched) webbing, and ten-minute samples were taken hourly. During September, October, and November, tidal fluctuations and current speeds were such that sampling gear would not function properly. Current velocities of less than the 23 cm/sec. needed to work the nets were recorded during this time.

Shrimp and blue crab catch in the wing net samples were significantly below that recorded in 1981. This is in direct contrast to the brown shrimp catches that were observed in the trawl samples.

In Terrebonne Parish, during the fall shrimp season, shrimp taken with the wing nets made up a substantial portion (perhaps 50 percent) of the commercial catch. These were taken primarily with mobile nets "pushing" in the main channels. Also, during the first major cold front of the year (November 5), large numbers of southern flounder were found in the wing net catch. Some flounders taken in the wing nets below Sister Lake weighed up to six pounds.

Field work on the federally funded PL 88-309 "Territorial Sea Project" was begun. Objectives of this project were (1) to monitor shrimp and groundfish populations in Louisiana's inshore and territorial waters and (2) to monitor hydrological conditions in the inshore and territorial waters using biological data collected in the trawl samples.

A total of 3330 biological (shrimp monitoring) samples were taken in coastal Louisiana. These included 546 plankton samples, 1343 6′ trawl samples, 1082 inshore 16′ trawl samples, and 359 offshore 16′ trawl samples. The plankton nets used were ½ meter circular nets which were conical shaped and had a 505 micron mesh opening. The 6′ trawl was a flat otter trawl that had a body constructed of ⅜″ bar (¾″ stretched) mesh and a tail which had ¼″ bar (½″ stretched) mesh. The 16′ trawl used for both inshore and offshore sampling had ¾″ bar (1½″ stretched) mesh body and a ¼″ bar (½″ stretched) mesh tail. Each gear was towed for ten minutes when taking the samples.



Intensive monitoring of the inshore brown shrimp population of Barataria Bay after the season opening (169 trawl samples over a 10 week period) was continued for the second straight year as field work on a project entitled "Effects of Seasons Opening on Inshore Brown Shrimp Populations". Other researchers have documented the recent trend toward decreasing size of shrimp landed in Louisiana and Texas and have suggested that this may be predominately due to trends in fishing mortality and time phasing of peak fishing activity. Preliminary review of data collected over the past two years suggests that 50-60% of the shrimp present in inside waters at season's opening are no longer present seven days later (were either harvested, died or migrated). More detailed analysis of these data should help identify what role the season opening plays in determining inshore brown shrimp population structure.

Field work on "A Study of Postlarval Shrimp Movement Through Caminada Pass" was conducted in Barataria Bay. Three 24-hour sample sets (in excess of 150 individual samples) were made using paired rigid-frame plankton nets in an attempt to increase our understanding of postlarval shrimp movements through a tidal pass.

Preliminary "tests" were made of a net type of shrimp harvesting gear manufactured by the Trawl Shrimp Cage Corp. of New Orleans, Louisiana. This gear is essentially a modified "wing net" and among the advantages listed by the manufacture is its ability to allow undersized shrimp and fish to pass through the webbing of the cod end. Although the number of samples to date is small, the results suggest that this gear will catch larger shrimp than a comparable unmodified wing net.

SEAMAP SEAMAP is a coordinated research effort involving the five gulf states, the federal government and other marine agencies which play a role in the protection and management of the living marine resources of the Gulf of Mexico. The purpose of the program is to reduce the redundancy and maximize the effectiveness of field activities conducted by these agencies. The first goal of the program was to conduct a coordinated gulf-wide survey aimed at determining shrimp size and distribution from 0-45 fathoms. Louisiana's role in SEAMAP's survey was to sample the shallow Gulf waters off Louisiana from the beach out to 5 fathoms. Biologists collected weekly 16-ft trawl samples at one fathom increments along a transect extending gulfward from the coastline; zooplankton was also sampled at the 1 and 5 fathom stations. Concurrent measurements of conductivity, salinity and temperature were made along with top and bottom oxygen measurements. Samples were collected from June 15 - July 15. The data collected were coded and forwarded to National Marine Fisheries Service (NMFS) in Galveston, Texas.

The SEAMAP sampling identified an area of low oxygen which occurred off the Louisiana coast. This hypoxic condition occurred during the time of peak white shrimp spawning and recruitment. It is believed this had a direct effect on white shrimp populations by reducing spawning success and delaying recruitment to the estuary. It is also believed the hypoxic condition had a direct effect on brown shrimp migration patterns offshore.

The fact that a "dead area" occasionally occurs off Louisiana has been known for some time. Due to the unusually early occurrence of this oxygen deficient water offshore from Barataria Bay, a 4 month sampling program was conducted in addition to SEAMAP. Weekly oxygen measurements were made from two depths at five stations. These samples helped provide information on the extent and duration of the hypoxic event.

Underutilized Species The center of experimental fishing activity east of the Mississippi River was the Hopedale and Yscloskey area of St. Bernard Parish. Permits used in this area were previously for purse seines.

Many permit holders did not use their permitted gear after they became aware of their permit restrictions. The permits were issued only for use in Louisiana's offshore territorial waters and Chandeleur and Breton Sounds. Many permit holders reported using fish seines with good success. So many black drum were taken with fish seines that the market was flooded and the price for large black drum dropped from 30¢ to 10¢ per pound.

Approximately 937,000 pounds of striped mullet were caught with permitted purse seines east of the Mississippi River. Nearly all of these fish were trucked to processing plants in Florida where they were prepared for overseas markets.

Renewed interest in eel fishing occurred in 1982, and four permits were issued for the fishery. Catch reports show over 12,000 pounds caught in the last three months of the year.

Shell Dredging Biologists were involved in the development of a dredging schedule for the taking of clam shells from Lakes Pontchartrain and Maurepas. Additionally, comments were prepared and meetings attended regarding the department's position on the extention of dredging permits for Lakes Pontchartrain, Maurepas and the Atchafalaya Bay.

Shell dredging leases in Lakes Pontchartrain and Maurepas expired in 1982 and were renewed by the department until 1997. The U. S. Army Corps of Engineers and the Louisiana Department of Natural Resources issued dredging permits until 1987. Prior to the issuance of the permits, controversial and much debated public hearings were held in October in Jefferson and Iberia parishes. The pros and cons of shell dredging were voiced by 35 individuals or group representatives at the public hearings.

Though no formal incidence reports were received due to shell dredging operations, numerous verbal complaints were received which were usually concerned with competition for available space. A change in the zone configuration for shell dredging operation in the lakes was completed in an effort to reduce competition for space between user groups and the shell dredges. Questionnaires were sent to 357 licensed crab fishermen in the lakes area; 22 replies were received concerning the zoning change.

The three shell leasing companies in Lakes Pontchartrain and Maurepas: Louisiana Materials, Radcliff Materials, and Pontchartrain Materials, produced 2,604,151 cubic yards of shell that provided the State with $708,452 of revenue. The renegotiation for leases increased the revenue to be paid by the shell industry to the State from 21.5¢ a cubic yard to 30.5¢ a cubic yard minimum, with subsequent annual increases to be based on the All Urban Consumer Price Index.

Close observations were made of shell dredging activities in Atchafalaya Bay by regular weekly site visits and unannounced visits by boat and air to monitor dredge movements and location.

LOOP Monitoring Section

Environmental monitoring of the Louisiana Offshore Oil Port (LOOP) by the department's Seafood Division began in 1978 and will continue as long as LOOP is in operation (an estimated 30 years), as mandated by state and federal licenses issued to LOOP. LOOP is a common carrier of crude oil designed to accept oil from supertankers and distribute it to refineries. Facilities consist of an offshore pumping platform, pipelines and an inshore salt dome storage complex. The first supertanker offloaded oil at the offshore platform in May 1981. As the entire LOOP system is constructed in the sensitive coastal and estuarine area of Louisiana, extensive sampling is done to determine the impact on waters and wetlands and to provide consultation and expert recommendations to reduce adverse impacts caused by the operation of LOOP.

LOOP's transition from the construction phase to the operational phase resulted in a shifting of the monitoring effort to place more emphasis on the offshore environment. Some of the inshore stations were reduced while new techniques were initiated and additional sampling sites designated for the offshore area.

During March of 1982 a suit was filed by concerned fishermen from Lafourche Parish who claimed that the discharge of brine solution into the Gulf was detrimental to the environment, in particular the commercial species of fish and shrimp, and that the department was unable to detect any adverse impact because of an inadequate monitoring program. The data collected from the monitoring program were presented during a two-week trial and it was proved to the satisfaction of the court that there was no adverse environmental impact from the discharge of brine at that time. The ruling of the court was in favor of the department.

Coastal Use Permits Section

The department is presently under contract with the Department of Natural Resources (DNR) in a project for "Implementation of Procedures for Evaluation, Enforcement, Monitoring and Coordination of Coastal Use Permits." This secton has the primary responsibility for conducting field investigations and coordinating other permit activities with DNR. It has the capability to readily conduct a projected maximum of 600 field investigations on permit applications per year, as well as the other surveillance and coordination activities as outlined in the contract between this department and DNR.

A total of 380 field investigations were made on permit applications. The majority of these were related to petroleum development, including dredging for access canals and pipelines. The parishes with the highest number of field investigations were Cameron, Plaquemines, and Terrebonne. During this time, DNR received approximately 1900 permit applications.

Several meetings between DNR and the department were held during the year to discuss, coordinate and refine methods and techniques used in various field activities and field investigations. In addition, interagency meetings (including our department, DNR, U. S. Fish and Wildlife and Service, National Marine Fisheries Service, Environmental Protection Agency, and U. S. Army Corps of Engineers) to discuss various permits and permitted activities in the coastal zone were attended regularly. Numerous meetings and special field trips with various permit applicants, as well as a number of public hearings throughout the coastal zone, were also attended during the year.

In addition to the DNR permits received and investigated, permit applications from the U. S. Army Corps of Engineers were reviewed and department comments were prepared concerning the impact on oyster leases and other wildlife and fisheries resources.

Lyle S. St. Amant Marine Laboratory Section

The marine lab facility on Grand Terre has been in existence since the early 1960's. Although the direction and emphasis has changed over the years, the main function of the marine lab staff is to conduct applied research on economically important fish and invertebrates and on other pertinent marine ecological studies. Results from these research efforts are used to help manage, improve, and/or protect our marine resources. Besides research, the laboratory staff is also involved in many other activities. Activities are broken down into the following major groups:

1.) **Research** — Both long-range and short-term research projects are conducted to furnish applied data necessary for management, policy formation, and protection of our important marine species. Approximately 30 individual research projects are presently under investigation on such species as stone crab, blue crab, oyster, clam, Gulf menhaden, Atlantic croaker, spot, red drum, speckled trout, sand seatrout, and black drum.

2.) **Monitoring** — As part of the department's coastwide oyster spat monitoring program, the staff is responsible for sampling spat fall in Barataria Bay. These data may serve as an index for predicting recruitment of oysters on reefs. Salinity measurements are taken weekly at selected stations in Barataria Bay to construct isohaline lines. The information is useful in the ecological assessment of some economically important marine species.

3.) **Development, Extension, and Management** — Technical advice and extension type services are provided to commercial fishermen on occasion. Ten oyster complaints were investigated in 1982. Damage to oysters and oyster bottoms by industrial activities is a major concern in south Louisiana. Leases are examined and a written report generated.

4. **Education** — The biological staff and facilities of the Marine Lab are available for various educational programs. Approximately 15 junior high/senior high school groups and conservation groups visited the lab in 1982 and were given lectures and/or demonstrations of field collecting techniques. In addition, several college marine ecology classes had overnight field trips at the lab.

5.) **Miscellaneous Activities** — Fish kills and/or pollution spills were inspected on occasion. Staff biologists also participated on various committees.

The major lab research undertaken in 1982, grouped by species, included:

1.) **Oysters** — Further refinements were made in the model describing the relationship between seed oyster production and salinities. Using this model, a successful prediction was made of seed production east of the Mississippi River. This will be instrumental in determining optimum salinity regimes for the estuarine areas to be impacted by freshwater diversions from the Mississippi River.

A study was begun to determine when and where cultch plants should be made on the Hackberry seed reservation to maximize benefits.

Also initiated was a study in which oyster growth and survival is monitored throughout the Barataria Bay system. It is hoped that relationships between oyster performance and the diverse environmental conditions in the system can be determined.

2.) **Clams** — The shellfish hatchery at the marine lab was used to successfully spawn and rear the Southern Quahog *(Mercenaria campechiensis)*. Further refinements in our technique will be made and the feasibility of a large scale commercial hatchery operation will be assessed.

3.) **Shrimp** — A study to determine the effects of the opening of the brown shrimp season on inshore brown shrimp populations was continued for a second year. Data collected were supportive of 1981's preliminary findings which indicate the opening date has an important bearing on total shrimp landings.

4.) **Spotted Seatrout/Red Drum** — Tagging and subsequent recapture of fishes can give valuable migratory and growth data on the target species. Several hundred red drum (red fish) are being caught, tagged, measured and released. Several returns have been recorded to date.

Age and growth data are essential in making many management related policies in that they provide informaton on the vital population statistics of the species in question. In one study, adult red drum are being collected with various types of gear in an effort to obtain a wide range of sizes. The fish are weighed and measured, and scale samples and otoliths are removed from each specimen. The hard parts will be analyzed for annual growth checks and each fish will be assigned to a year class. Yearly growth estimates will be calculated through integration of the age and size data.

The spawning season for red drum in southeast Louisiana, as determined by gonadosomatic indices, was found to be in mid-September. Further proof of the September spawn was substantiated by the presence of juvenile red drum in October. The spawning period was determined to last approximately 20 days. Food habit studies provide pertinent information about a fish's relationship with its environment and co-existing organisms. Stomach contents of red drum and spotted seatrout (speckled trout) have been collected and identified. Data are currently undergoing statistical analysis to better quantify food selection trends or patterns.

5.) **Menhaden** — The abundance of juvenile menhaden and pertinent environmental conditions were monitored. The ultimate purpose of this study is to make annual forecasts of the menhaden harvest. This past year, using knowledge obtained in two studies ("Influence of Environmental Parameters on Gulf Menhaden Year Class Strength" and "Evaluation of Juvenile Menhaden Abundance Data for Prediction of Commercial Harvest"), 1981 juvenile menhaden data and 1981 environmental data were used to project catches of age-1 fish in the 1982 menhaden fishery. A projection of above average catches was made; the actual catch-per-unit-effort generated in the models was one of the top three ever recorded. Actual commercial harvest data indicated that 1982 catches were the second highest on record. Data are presently being analyzed to make harvest forecasts for the 1983 fishery season.

Fish Kill Section

A total of 25 kills, 22 affecting fish, 2 affecting crabs and 1 affecting oysters were investigated. Of these, 40% were due to natural low D.O. (dissolved oxygen) causes, 24% to low D.O. as a result of sewage, 8% were trawl discards, 8% were caused by chemicals or oil spills, and 4% each were caused by disease, low pH, predation, accumulation of toxic metabolites or high salinity (concerning freshwater fish). In addition, a paper dealing with the relation of surface water parameters to shrimp abundance in Plaquemines Parish was written, a popular article on natural causes of fish kills in Louisiana was written for possible inclusion in the *Louisiana Conservationist*, and drinking water analyses were made for department installations in southeast Louisiana.

Hydrological Management Section

A total of 16 locations have been established along the coast for the constant monitoring of conductivity, salinity and water temperature. Rainfall and windspeed data are also taken along the coast. These data are useful in the prediction of the annual shrimp harvest and oyster production, and environmental problems.

In January 1982 the chemistry laboratory began using a Technicon Auto Analyzer II. This machine facilitates the analysis of water samples, resulting in greater accuracy and less time.

The section assisted the Fisheries Management Section in the mapping of low dissolved oxygen conditions offshore. The low dissolved oxygen wedge first appeared during the second week of May and continued through August. During these four months, several sampling trips were made offshore in an effort to determine the horizontal and vertical extent of this situation. The data show that July was the month of the largest vertical and horizontal extent with the area offshore from Barataria Bay showing low dissolved conditions from 3 fathoms out to 11 fathoms.

Ecological Studies Section

The Ecological Studies Section was transferred from the Office of Wildlife to the Office of Coastal and Marine Resources on July 1, 1982. None of the basic duties or responsibilities of the section were changed as a result of the transfer. Those duties and responsibilities are mandated by state and federal law and are 75% financed by the federal government under authorized federal aid project No. FW-3.

The Ecological Studies Section performs two basic functions: (1) provides technical assistance to several government and private agencies and/or individuals on environmental matters primarily related to fish and wildlife resources and, (2) conducts biological field surveys and some limited basic biological research. Additional responsibilities not directly covered under the federal aid project are (1) endangered species consultation, (2) clearinghouse for information concerning endangered and threatened species, and (3) clearinghouse for information concerning other non-game species.

The Ecological Studies Section reviews proposals by the U. S. Army Corps of Engineers, the U. S. Department of Agriculture and other state and federal agencies to assist them in formulating and evaluating methods to avoid, reduce, and mitigate damages to fish and wildlife resources. The section also reviews and comments on applications for permits for projects potentially damaging to fish and wildlife resources, and assists licensing and permitting agencies in finding project alternatives and/or modifications that are less damaging to fish and wildlife resources. This technical assistance function is also extended to private individuals and companies upon request.

The Ecological Studies Section also adminsters the scenic rivers permitting system for the department and renders technical assistance to applicants who wish to secure such permits.

In conjunction with the scenic rivers permitting, the section also conducts scenic rivers surveys. The surveys are designed to develop and record pertinent long term physicochemical and biological information on Louisiana's Natural and Scenic Rivers System. Data gathered for this purpose are used to gain an understanding of the river system and to assess the potential for changes due to outside influences. Specific streams or segments of streams are evaluated upon request by appropriate authorities for the purpose of determining the stream's suitability for inclusion in the Scenic Rivers System.

The section maintains information and maps concerning endangered and threatened species and offers a publication for general use dealing with the endangered animals of Louisiana.

In 1982 the Ecological Studies Section evaluated and commented on approximately 2300 Section 10 and Section 404b permit applications and approximately 900 coastal use permit applications. In addition, several major projects such as the Mississippi River Gulf Outlet Project, the Mississippi River Deep Draft Project, fresh water introduction projects, Old River control structure, Red River Navigation Project, several hydroelectric generation proposals, lignite mining projects in northwest Louisiana, and the Terrebonne Parish Forced Drainage Project were examined and commented on.

The section continues to receive inquiries for information on endangered species and the coordinator continues to represent the department on the Environmental Control Commission, the Water Resources Study Commission, the Flood Plain Management Advisory Committee, and the Recreation, Tourism and Wildlife Committee.

Aviation Section

The Aviation Section has played an indispensable role in the operation of the Louisiana Department of Wildlife and Fisheries during the past year. Law enforcement work, wildlife inventories, range surveys, and similar habitat inspection flights dominate daily activities of the section.

The typography of Louisiana's vast coastal marsh is such that law enforcement work and habitat surveys would be virtually impossible without the use of aircraft. Helping to control out of season shrimping in inside waters along Louisiana's four million acres of coastal marshes has been a major activity of the Aviation Section. Daily shrimp patrols are flown.

Department aircraft are used in spotting night hunting, and in this type of patrolling, the department's excellent radio communications between planes, boats and vehicles makes the use of aircraft even more valuable.

One of the department's aircraft, paid for by federal funds, is used for taking aerial counts of waterfowl during the six month period when many migratory waterfowl are present in the state and for inspecting wintering habitat for migrating waterfowl. Use of this aircraft is restricted by federal regulations to specified and specialized flights.

Aircraft are often used in the rapid transportation of post-larval fish from hatcheries to rearing installations to prevent mortality.

The department's aircraft are always available for use during emergencies or times of natural disaster.

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